EPA Region 7 TMDL Review

TMDL ID	109	*Water Body ID*	IA 03-NSK-00340-L
Water Body Name	Rock Creek Lake		
Pollutant	Siltation and Nutrients		
Tributary	Rock Creek		
State	IA *HUC*	10280102050	
Basin	North Skunk		
Submittal Date	12/13/2001		
Approved	yes		

Submittal Letter

State submittal letter indicates final TMDL(s) for specific pollutant(s)/ water(s) were adopted by the state, and submitted to EPA for approval under section 303(d) of the Clean Water Act.

Letter dated December 13th, 2001, and received by EPA December 17th, 2001, formally submitting this TMDL for approval under Section 303(d).

Water Quality Standards Attainment

The water body's loading capacity for the applicable pollutant is identified and the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources is described. TMDL and associated allocations are set at levels adequate to result in attainment of applicable water quality standards.

The loading capacity for sediment delivery to the lake is identified as 7,547 tons/year, and 10.4 tons/year for total phosphorus with an in-lake phosphorus concentration of 100 ug/L. A seventy percent reduction in total phosphorus and sediment from the current loads, as identified in the load allocation, a fifty-three percent reduction in total phosphorus concentrations seen in the lake, and a surrogate measure of attainment of the Class B aquatic life use in Phase 2, will ultimately result in attainment of water quality standards.

Numeric Target(s)

Submittal describes applicable water quality standards, including beneficial uses, applicable numeric and/or narrative criteria. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, site specific if possible, was developed from a narrative criterion and a description of the process used to derive the target is included in the submittal.

Water quality standards and beneficial uses are described as well as applicable narrative criteria. Phase 1 numeric expressions for total phosphorus and sediment delivery to the lake are provided, are site specific to the watershed, and are described using the AGNPS watershed model and the EUTROMOD lake model. A Phase 2 surrogate measure is also identified as a fully supporting Class B aquatic life use which will be determined in accordance with the Statewide Biological Sampling Plan protocol.

Link Between Numeric Target(s) and Pollutant(s) of concern

An explanation and analytical basis for expressing the TMDL through surrogate measures (e.g., parameters such as percent fines and turbidity for sediment impairments, or chlorophyll-a and phosphorus loadings for excess algae) is provided, if applicable. For each identified pollutant, the submittal describes analytical basis for conclusions, allocations and margin of safety that do not exceed the load capacity.

Impairment of the aquatic life use in Rock Creek Lake is linked to excess sediments and nutrients which are impacting aquatic habitat necessary for successful spawning and reproduction of the fish community . The pollutants are also causing excessive algal blooms potentially resulting in hypoxic conditions in mussel bed habitat and an annual summerkill of these species. Since excessive sediment deposition and nutrients has impacted aquatic life in this lake, the target includes both sediment and total phosphorus loads to the lake and measurement of the aquatic life within the lake.

Source Analysis

Important assumptions made in developing the TMDL, such as assumed distribution of land use in the watershed, population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources, are described. Point, non point and background sources of pollutants of concern are described, including magnitude and location of the sources. Submittal demonstrates all significant sources have been considered.

There are no permitted point source contributions of sediment and nutrients in the watershed. Non-point source contributions are fully described and include consideration of sewage treatment lagoons at the state park. The AGNPS modeling results indicate high levels of phosphorus coming from subwatersheds dominated by pasture, and streambank and streambed erosion significantly contributing phosphorus and sediment.

Allocation

Submittal identifies appropriate wasteload allocations for point, and load allocations for nonpoint sources. If no point sources are present the wasteload allocation is zero. If no nonpoint sources are present, the load allocation is zero.

Current sediment and nutrient delivery to the lake based on 1998-99 monitoring data is 34.6 tons of phosphorus and 25,155 tons of sediment per year. The load capacity of the lake for sediment has been determined to be 7,547 tons per year and for total phosphorus,

10.4 tons per year with an in-lake phosphorus concentration of 100 ug/L.

WLA Comment

The wasteload allocation is zero.

LA Comment

The load allocation for sediment is 7,547 tons per year and for total phosphorus, 10.4 tons per year. The total load allocation equals the load capacity.

Margin of Safety

Submittal describes explicit and/or implicit margin of safety for each pollutant. If the MOS is implicit, the conservative assumptions in the analysis for the MOS are described. If the MOS is explicit, the loadings set aside for the MOS are identified and a rationale for selecting the value for the MOS is provided.

The MOS of safety is implicit based on the the Phase 2 target where the aquatic life use must be restored to the lake in addition to total phosphorus and sediment load reductions identified in Phase 1.

Seasonal Variation and Critical Conditions

Submittal describes the method for accounting for seasonal variation and critical conditions in the TMDL(s).

Since sediment and nutrient loading varies substantially by season and between years, and the impacts are felt over multi-year timeframes, a yearly allocation is used.

Public Participation

Submital describes public notice and public comment opportunity, and explains how the public comments were considered in the final TMDL(s).

Public meetings were held in Des Moines and Newton on 1/17/01, 1/18/01, and again in Newton on 10/29/01 to present the final draft TMDL to the public. Copies of the draft TMDL were also posted on the IDNR website for public review.

Monitoring Plan for TMDL(s) Under Phased Approach

The TMDL identifies the monitoring plan that describes the additional data to be collected to determine if the load reductions required by the TMDL lead to attainment of WQS, and a schedule for considering revisions to the TMDL(s) (where phased approach is used).

In-lake water monitoring will also be completed as part of the Iowa Lakes Survey, which includes three times per year for each of the field seasons 2000-2004. The DNR Fisheries Bureau will conduct an assessment of the lake in accordance with the Statewide Biological Sampling Plan protocol.

Reasonable assurance

Reasonable assurance only applies when reduction in nonpoint source loading is required to meet the prescribed waste load allocations.

Reasonable assurances are not required in the TMDL because there are no point sources contributing to the impairment in the watershed.